WPS1421

POLICY RESEARCH WORKING PAPER 1421

Distribution of Income and the Income Tax Burden in Bulgaria

Željko Bogetić
Fareed M. A. Hassan

The empirical analysis of Bulgaria's income distribution and income tax burden indicates that the country has low income inequality although this is changing rapidly. The income tax is progressive and contributes significantly to reducing income inequality, and the urban sector pays proportionately more in taxes than the rural sector.

The World Bank
Europe and Central Asia, Country Department I
Country Operations Division
February 1995

POLICY RESEARCH WORKING PAPER 1421

Summary findings

Using the 1992 Bulgarian household budget survey, Bogetić and Hassan analyze the distribution of income and of the income tax burden by income and expenditure class and by rural-urban sector. They find:

- Low income inequality (although that is changing rapidly).
- A progressive income tax system. The poor (the lowest two-income decile) pay only 1.4 percent of their per capita income in income tax; the rich (the top decile) pay nearly 6 percent. In-kind income and expenditures are excluded from taxation.
- The urban sector paying proportionately more in taxes than the rural sector. For example, urban households pay 5.3 percent of their per capita income in income tax, whereas the rural sector pays 2.4 percent.
- Income tax contributes significantly to reducing income inequality at both the national and sectoral (rural-urban) level, as the poor pay a smaller share of taxes than their share of national income.

These results hold whether income or expenditure is used as an indicator of economic well-being.

Bogetić and Hassan caution that as in-kind income becomes monetized and the economy becomes more market-oriented, the system will become less progressive and urban-rural differences will diminish.

They contend that the bias toward higher urban taxes is justified to some extent by the fact that urban households benefit more from government services than rural households do.

This paper — a product of the Country Operations Division, Europe and Central Asia, Country Department I — is part of a larger effort in the region to analyze the consequences of government public finance policies. This paper is a part of a volume under preparation, *Financing Government in the Transition: Bulgaria*, edited by Željko Bogetić and Arye Hillman. The preparation of the volume is supported by the Bank's Research Support Budget under dissemination grant "Taxation and Revenue Adequacy in Transition: Observations and Implications from Bulgaria" (RPO 679-60). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Faithlyn Smith, room H5-245, extension 36072 (26 pages). February 1995.

DISTRIBUTION OF INCOME AND INCOME TAX BURDEN IN BULGARIA*

Željko Bogetić and Fareed Hassan

The World Bank
Europe and Central Asia Country Department 1
1818 H Street N.W.
Washington D.C. 20433

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I. Introduction

Under the previous centrally planned system in Bulgaria, taxes were but one, and perhaps not the main instrument of massive redistributions. Indeed, non-market pricing and extensive explicit and implicit subsidies were equally important mechanisms for creating and maintaining an economy based on the principle of extreme egalitarianism. The shift to a market economy, which in Bulgaria accelerated in 1991, changed all that. Market-based relative prices now guide most of the economic activity, private sector is a significant part of the economy, and taxes are increasingly becoming similar in form and effects to those in market economies[1].

Furthermore, taxes are becoming an important characteristic of the overall economic environment determining incentives to engage in economic activity, and level and

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1/ For recent surveys of Bulgaria's market reforms see, for example, World Bank (1994a,b), and European Commission (1994).

composition of incomes. But there is an acute lack of empirical analysis on the effects of taxes in the course of economic transition. Some exceptions include studies by Coulter, Heady, Lawson and Smith (1993), and Milanović (1992). Partly, this is due to the fact that in a rapidly changing environment, it is difficult to isolate a set of factors influencing a particular phenomenon studied. Nevertheless, as more reliable data emerge, there is a need to put them to use to analyzing and assessing tangible economic issues of the transition. In particular, household budget survey data, with all their shortcomings, can serve multiple purpose of analyzing a host of distributional issues.

In this paper, we attempt to use the data on household income, expenditure, and taxes from the most recent Bulgarian household budget survey to analyze the impact of income tax on household income. The present income tax system with marginal rates ranging from 20 percent to 52 percent is the most important tax affecting the individual and household financial positions. Furthermore, we are interested in addressing questions such as these: who pays income tax in Bulgaria? What proportion of households are paying most of these taxes, and how progressive is the income tax? Does the current tax system contribute to achieving economic equality? Finally, we also examined the effective tax rates paid by households in rural and urban areas, as well as their distributional impacts.

The paper is organized as follows. Section II provides the background to the analysis through a brief overview of the evolving tax structure and government revenue performance in Bulgaria. Section III describes the data and methodology, and section IV discusses the income levels and income distribution. In section V, we ask whether the present income tax system is progressive. The section provide estimates of the overall effective tax rates as well

as sectoral rates paid by urban and rural households. The section also discusses implications of the analysis for the distributional impact of taxation. The conclusion, section VI, summarizes the main findings of the study.

II. Tax Structure and Tax Performance: A Brief Overview

Bulgarian tax structure and tax revenue performance have undergone profound changes over the past several years. Much of this change is associated with the unique circumstances of the economic transition from a centrally planned to a market economy. The transition results, among other things, in the explosion of new private activity and the implosion or stagnation of many state enterprises facing restructuring and privatization. This poses formidable challenges to tax policy and tax administration. High taxes on a heavily controlled, small number of state enterprises become unsustainable, and are being replaced by more moderate taxes on considerably larger number of private and state enterprises. Given the scarce tax administration resources, this results in a general policy shift towards simpler tax structure with lower rates. Tax revenues inevitably fall.

The decline in the involvement of state in the economy is reflected in the decline in the revenue-to-GDP ratio. In Bulgaria, revenues declined from 43% of GDP in 1991 to approximately 35% in 1993. Tax revenues, particularly profits tax revenues, were the main driving force of this decline. The new set of market based relative prices uncovered financial inviability of many enterprises. Furthermore, many enterprises faced an abrupt loss of external markets associated with the collapse of the former Eastern European trading block

(CMEA). At the same time, there was weakening of state control over state enterprises, in the presence of perverse incentives, which contributed to a dramatic deterioration in the financial position of many state enterprises. As a result, the profits tax base -- surpluses of state enterprises -- and the associated government revenues plummeted. The percentage of revenues from profits tax, the key tax instrument, dropped from over 17% of GDP in 1991, to about 5% in 1993 (Table 1).

Tax reform necessitated by the move to a market economy resulted in significant changes in the tax structure. The pre-reform Bulgarian tax structure was dominated by the extremely high rate of 50% on "accounting profits" of state enterprises[2], an archaic final-sale turnover tax structure with many rates, and non-transparent social security contributions. These three taxes accounted for over two thirds of all government revenues. Administrative effort required to collect those revenues was modest. For the managers of a relatively small number of state enterprises (around 6,000) directly controlled by the state-party apparatus, the costs of non-compliance were high.

2/ The base for this tax had little to do with economic profits. Subsidies were counted as revenues, while important expenditure items including wages and salaries, interest payments and insurance were not counted as costs. Therefore, "accounting profits" were much higher than economic profits. Additional problem in making sense of the pre-reform profits of state enterprises was the fact that both input and output prices were typically controlled, thus further distorting the picture of true financial position of these enterprises. For more thorough discussions of the pre-reform tax system in Bulgaria, see Bogetić and Hillman (1994) and World Bank (1991), chapter one.

Table 1: Tax Structure (1993) and Government Revenues in Bulgaria

Type of Tax	Rates	Base	Revenue (% of GDP)		
			1991	1992	1993
Profits Tax	40% standard rate for non-financial enterprises. 50% rate for banks and insurance companies 30% for private companies with profits below 1 million leva	Profits of all SEs, MEs*, and private enterprises	17.3	8.3	5.2
Social Security contributions	pension: 40% unemployment: 7%	Gross wage	7.8	9.1	8.4
Income Tax	Marginal rates from 20% to 52%	Individual income	3.8	5.4	4.8
Turnover Tax/VAT	Standard rate: 22% (lower rates: 2%, 10%)	Retail turnover of all enterprises; lower rates apply to food and select sectors (construction)	3.8	3.5	3.8
	VAT (1994) Single rate: 18%	Value added of goods and services			
Excises and customs	Ad valorem excise rates vary from 35% (diesel fuel) to 70% (alcohol, jewelry)	Turnover of select goods	4.8	4.6	6.2
Non-tax revenue	Various fees, charges on services	select public services	4.8	7.5	6.2
			Total 42.3	Total 38.3	Total 34.6

* SEs denotes state enterprises, MEs denotes municipal enterprises. Municipal enterprises and state enterprises with more than 50% municipal participation in ownership were liable for an additional 10% tax on profits payable to their municipalities. Source: Bogetić and Hillman (1994), World Bank (1994a), and *Tax Notes International* (1993).

Following the comprehensive price liberalization of 1991, at a time when the economy was subjected to a series of severe external shocks[3], the mirage of "accounting profits" disappeared, leaving many state enterprises in the red. By 1993, the revenue significance of profits tax, levied at the reduced rate of 30%, fell behind social security tax, excises and customs, and non-tax revenues. After the turnover tax rate structure had been considerably simplified and base broadened, it was replaced by a Value Added Tax with a single 18% rate in 1994. With the general shift in the emphasis from mandatory to voluntary compliance, a progressive income tax with marginal rates ranging from 20% to 52% gained more prominence. Revenues from income tax as a share of GDP rose by 25 percent between 1991 and 1993, compared with a sharp decline (about 70 percent) in revenues from profit tax.

Against this background, distributional effects of the emerging tax system in Bulgaria are far from clear and are not, to our knowledge, systematically analyzed. Yet, in the emerging market economy, understanding distributional effects of taxation may be of particular interest for policy. In this paper, we therefore attempt to provide a preliminary analysis of the effects of income tax on the distribution of income, using the household budget survey data. It is hoped that quantitative picture of the often poorly understood distributional effects of taxation will provide the basis for better tax policy analysis and tax design in Bulgaria as well as in other economies in transition.

3/ These include the loss of traditional external markets of the former CMEA countries, the impact of the Gulf War, the severed trade routes to the West due to the disintegration of the former Yugoslavia, and the subsequent U.N. sanctions against Federal Republic of Yugoslavia (Serbia and Montenegro).

III. Data and Methodology

The analysis is based on the most recent household budget survey: the 1992 Individual Budgets of Households, compiled by the National Statistical Institute (NSI) of Bulgaria. The sample was constructed as a two-tier random sample, involving 2,202 households (or less than 1 percent of households). Of these 2,202 households, 1,386 households (or 63 percent) are urban, the remaining are rural. It is based on a sample frame developed from the 1985 Population Census. The sample was constructed from a sample of 418 sectors or Census districts: each district contains about 90 households and 6 households were sampled from each sector.[4] Each household was paid a nominal amount, Leva 100 per month (about US$4.00), for participating in the survey. According to the officials of NSI, the sample was "random", and it adequately represented the incomes and expenditures of the Bulgarian population[5].

The pattern of effective tax rates, i.e., whether they are progressive, regressive or proportionate, depends not only on the distribution of tax burdens, but also on the concept of income which is used to determine the underlying pattern of income distribution. The concept of income employed in the NSI survey includes seven major sources of pre-tax income - earned income, property income , social insurance, social benefits, income from sales, other

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4/The sample of 418 sectors were taken from a 'control' sample of 4,000 sectors which was, in turn, taken from the 1985 Population Census of 40,000 sectors, including approximately, 3.2 million households.

5/ Nevertheless, it appears that some minorities, particularly gypsies, were probably under-represented in the sample.

sources of income (mainly in-kind income), and income from loans, credits and savings. Some of these sources, such as income from sales of property, borrowing and saving withdrawals do not belong to the usual definition of income. The inclusion of these sources can potentially alter the income distribution in Bulgaria, as would be expected from the concentration of assets (real and financial) in the richest group. However, even when these sources are included, the overall picture of the distribution of income in Bulgaria is not significantly affected[6]. Although in-kind income accounts for about 24 percent of household income and was counted as part of income, only cash income was subject to taxation. Ultimately, total consumption must be regarded as a more reliable indicator of household well-being than annual income. As Nissen (1984) noted, it reflects not only current total household income but also past savings, windfalls and expectations of future income, i.e., expenditure is a better proxy of lifetime income. More important, Poterba (1991) in his examination of the regressiveness of the US gasoline tax uses both household expenditure and

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6/ To assess the effect that such an inclusion might have on income levels and income distribution, Hassan and Peters (1994) make a number of adjustments to income as defined by the survey. First, sales of property are excluded, as they do not belong to income. Second, contrary to the NSI definition of income, personal borrowing, savings withdrawal, etc., are also excluded. Theoretically, one should include income that would be received if an asset were rented - rather than sold - in the marketplace instead of being used by the owner. However, in practice, making this distinction is extremely difficult. In general, income is not easily observable and measurable, especially during periods of radical changes in the structure of remuneration and taxes, inflation, and rapid changes in the structure of the economy (such as the public/private mix, growing informal sector, reliance on self-employment and so on.). Altering the definition of income leads only to a change in the level of household income per capita. However, none of the adjustments mentioned above significantly affect the decile shares or income inequality as both adjustments result in a very small change in the shares of all income groups. These results indicate that asset sales were, in general, evenly distributed across the population, and not highly concentrated in any income group.

income data and concludes that this tax appears far less regressive when expenditure rather than income is used as the basis for analysis. Of course, year-to-year fluctuations in income among poor households may exaggerate the regressiveness of taxes. Following Poterba's warning regarding the use of income, we have used in our analysis of tax burden both income and expenditure approaches.

The income unit which corresponds with the income concept employed in the Bulgarian survey is the *household*. The household concept adopted in the survey includes a one-person household, one family household, and a household of more than one family that makes common provision for food or other essentials for living. This definition corresponds closely to the definition of the 1980 World Population Census Program (United Nations, 1978). To account for variation in the household size, we shall use in our analysis the *annual household income per capita*. Finally, the consideration of household composition requires the use of an adult equivalent scale. The construction of such a scale is fraught with a number of conceptual and practical difficulties[7]. Hence, the calculation of such a scale has not been attempted for this paper.

Our analysis uses a partial equilibrium method for estimating the distribution of tax burdens. That is, taxes on factor income such as the income tax are taken to affect household positions from the sources side only (the burden being distributed in line with earnings subject to tax). Further effects from the uses sides, resulting from changes in relative prices are not taken into account. However, if each income group spends the same proportion of its

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7/The literature on the best procedures is controversial see, for example, Deaton and Muellbauer (1980) and Ravallion (1992).

income on the taxed and untaxed commodities, it is possible to disregard the uses side. This partial equilibrium approach has been used widely for policy analysis and for assessing the quality of the tax structure in distributional terms for many countries. The examples of these studies include that of the U.S. (Musgrave *et al.* 1951, Musgrave 1965), and the subsequent studies of Colombia (McLure 1971), Greece (Karageorgas 1973) and Tanzania (Huang 1976).

A more complete analysis of the effects of taxation that takes into account secondary effects mentioned above requires a general equilibrium approach. With all its difficulties, only few studies (e.g., Harberger 1962, McLure 1975, Fullerton *et al.* 1979, and Devarajan *et al.* 1980) attempted to combine the uses (demand for goods and services) and sources (of income) sides of tax burden, within the standard general equilibrium framework. Devarajan *et al.* (1980), in their comparison of different approaches, developed a simple, two-sector, two-consumer model and compare its implications with the estimation of the distribution of tax burdens derived for the U.S. by Musgrave *et al.* (1965) on the basis of a partial approach. Even for this simple general equilibrium model, the general expression for the changes in the distribution of tax burdens is fairly complex, and a wide range of results are possible. Nevertheless, Devarajan *et al.* have identified two parameters which might reverse the partial equilibrium pattern: the capital-labor ratio of the taxed industry and the capital-intensity of a consumer's factor endowments. However, the two-sector, two-factor model oversimplifies the process of substitution which affects both sources and uses sides.[8]

8/ In his pioneering paper on the incidence of the corporate income tax, Harberger (1962) also uses a two-sector, two-factor model which is commonly used in the theory of international trade.

Finally, Devarajan *et al.* also compared the results of the Fullerton *et al.* (1979) model with estimates of the partial procedure for four tax changes and three tax substitutions in the United States. They conclude that the two approaches yield strikingly similar results for the case of the income tax. In other cases, the similarity is greater for taxes on products whose capital-labor ratios are close to the average. It is worth mentioning that general equilibrium tax burden models are built on neoclassical assumptions. These include, *inter alia*, the assumption of perfectly competitive markets with no externalities; that factors of production are perfectly mobile between different industries; and that the total supplies of all factors are in perfectly inelastic supply to the economy as a whole.

A crucial assumption employed in our partial equilibrium method is that the distribution of a tax burden which initially affects household income from the sources (uses) side will be determined fully by the sources' (uses) side effects. Furthermore, our analysis does not capture other features which are especially relevant to the analysis of tax burden, such as variations in capital-labor ratios in production activities, variations in ratios of consumer factor endowments, and longer-term effects of tax policy through changes in the level of capital formation and growth. These simplifying assumptions could be modified in more sophisticated future analyses. At the same time, the difficulties (and, sometimes, non-transparency) involved in working with more complex models should be weighted against the pitfalls of over-emphasizing a single dimension of tax burden problems. Nevertheless, it is important to start by focusing on the analysis and interpretation of the available data using a simple analytical framework, such as the one employed in this study.

IV. Income Levels and Income Distribution

Ideally, tax policy analysis and reform proposals should be based upon estimates of the distribution of income and the burden of existing taxes. Knowledge of how equally (or unequally) income is distributed is essential to the determination of the desired degree of progressiveness (or regressiveness) of the tax system. If the distribution of income is already extremely unequal, a regressive tax system would impose even higher burden on the poor and lower income classes, while a mildly progressive tax system would not tap the tax revenue potential of those in the top income classes[9]. Moreover, without knowledge of the effective tax rates, it is not possible to know whether and how taxation corresponds with a country's views of the concept of equity. In general, the level of income in a nation is probably an important determinant of society's views of equity.

In Bulgaria, household incomes have fallen significantly in real terms during the transition. GDP has fallen by nearly 30 percent, since 1989 when the political transition began (World Bank, 1994a; Rose, 1993). A recent UNICEF (1994) study indicates that household incomes have probably fallen by roughly the same amount. One should caution, however, about comparing household incomes since the onset of the transition, because of dramatic changes in the structure of income and taxation over the past few years. Nevertheless, it is safe to say that most households have suffered significant income losses and many face increased uncertainty over their future incomes.

9/The classic study by Kaldor (1963) made a similar argument for progressive taxation in the context of the Latin American countries.

Using the 1992 household survey, average household income per capita is estimated at Leva 16,809, about US$ 709 (see Table 2). The average household income per capita in the rural sector is Leva 19,151 (about US$ 808), and it is 26 percent higher than the urban average (Leva 15,090 or about US$ 637). Furthermore, for each income decile, rural household income is higher than urban one (see Table 2). The difference in income levels between the two sectors is statistically significant.

Income distribution is measured by groups (decile, quintiles, etc.) ranking households by their income/consumption expenditure. The distribution of household income per capita by income decile is shown in Table 2. The Gini coefficient, an index measuring the inequality of income distribution, which is equal to zero in the case of perfect equality and to 100 percent in the case of total inequality, is 25.8 percent. While the Gini index in a typical middle-income country had ranged between 40 and 54 percent, in Central and Eastern Europe it oscillated between 20 and 29 percent, i.e., values even lower than those prevailing in Western market economies[10]. This comparatively low income inequality, although changing rapidly, is still an important characteristic of most economies in transition.

Table 2 shows that the rich (top decile) receive nearly 22 percent of total income, a share that exceeds their population share by more than 50 percent. In contrast, the poor (the bottom 20 percent) receive less than 10 percent of total income, i.e., a share that falls short of their population share by about 50 percent. Another way of viewing the concentration of income in the upper income groups is to calculate the *decile distribution ratio*, that is, the share of the bottom 40 percent in relation to the share of the top 20 percent. Table 2

10/ Hassan and Peters (1994).

indicates that the decile distribution ratio is 0.66, indicating that the poorest 40 percent of households earn only two thirds of the earnings of the top quintile. While income levels vary significantly between urban and rural areas, both the analysis of income shares by decile and Gini coefficients indicate that there is no significant difference between them in terms of income distribution (see Table 3). We note that the fact that income inequality is *not* significantly different between urban and rural areas is unusual for countries at Bulgaria's level of income.

Table 2: Distribution of Annual Household Income Per Capita (%, Leva)

Income Decile	National		Urban		Rural	
	Share (%)	Average (Leva	Share (%)	Average (Leva)	Share (%)	Average (Leva)
Bottom	4.2	6,941	4.5	6,816	3.8	7,507
Second	5.6	9,361	5.9	8,882	5.6	11,020
Third	6.5	10,900	6.7	10,101	6.6	13,037
Fourth	7.4	12,387	7.6	11,359	7.5	14,789
Fifth	8.3	13,928	8.4	12,654	8.5	16,622
Sixth	9.3	15,643	9.4	14,095	9.5	18,663
Seventh	10.6	17,778	10.5	15,844	10.5	20,856
Eight	12.1	20,380	12.1	18,192	12.0	23,608
Ninth	14.3	24,121	14.4	21,598	14.2	28,265
Top	21.8	36,653	20.7	31,357	21.8	42,784
Average		16,809		15,090		19,151

Table 3: Indicators of Income Inequality in Bulgaria (National Average, Urban, Rural)

Indicators of Inequality	National	Urban	Rural
Decile Distribution Ratio	0.66	0.70	0.65
Gini Coefficient	25.8	24.6	26.5

Source (tables 2-3): Authors' estimates from *the 1992 Individual Budgets of Households Survey*, NSI.

V. Overall and Sectoral Income Tax Burden

Using both income and expenditure measures, households are first assigned to deciles of income or spending distribution. The effective rate of income tax -the ratio of income (expenditure) taken by income tax- is then calculated for each income (expenditure) decile (see Table 4). Whether this ratio rises or falls (or is constant) as income (expenditure) rises determines whether the tax system is progressive or regressive (or proportionate). Table 4 shows that low-income households display markedly lower income tax-to income ratios than higher-income households. For the bottom income decile this ratio is as small as 1.4 percent. Also the poor (lowest two deciles) pay a similar ratio. The table shows a relatively smooth rise in the share of income devoted to income tax, to 2.5 percent at the fifth income decile . For the higher-income households (7 to 10 decile) the percentage of per capita income paid in income tax rises sharply with income. For instance, the rich (top income decile) pay more than four times higher effective income tax rate than the poor.

Table 4 also shows the fraction of household per capita expenditure devoted to income tax for households grouped by total expenditures[11]. Similar pattern of tax burden emerges. Households in the lowest expenditure decile devote 1.6 of their budget to income tax, compared with 3.2 percent for those in the fifth decile. The rich (highest expenditure decile) devotes 7.2 percent of outlays to income tax, or more than four times the amount paid by the poor.

11/In-kind consumption which was not subject to tax, was counted as part of total income/expenditure.

Figure 1 graphs the two sets of effective income tax rates: income-based and expenditure -based rates for all households. Two features of the figure are noteworthy. First, the distributional pattern of income tax does not differ in the two cases. The percentage of per capita income (expenditure) paid in income tax rises consistently with income (expenditure). Irrespective of the approach used, income tax falls most heavily on higher-income (expenditure) households -decile 7 to 10- with effective rates nearly four times that of poor households (lowest two decile). These results suggest that the present income tax system with marginal rates ranging from 20 percent to 52 percent is very progressive. Furthermore, the exclusion of in-kind income/expenditure eliminates much of the share income (expenditure) of the poor from taxation, increasing the progressivity. Second, although the effective income tax rates based on expenditure are higher than those based on income, the figure shows that the variation in expenditure shares across deciles is the same as the variation in income tax outlays as a share of income [12].

The urban and rural effective income tax rates for each income (expenditure) decile are also given in Table 4. Urban households pay 5.3 percent of their per capita income in income tax, whereas the rural sector pays less than half that amount. The table shows that the percentage of per capita income or expenditure devoted to income tax is much higher for the urban sector than the rural one. This urban-rural disparity in income tax burden cuts across income as well as expenditure classes. The disparity is due, among other things, to

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12/ Surprisingly, the household budget survey data show that household per capita expenditure is, on the average, lower than per capita income. For an economy in transition such as Bulgaria, one would expect a significant fraction of households to experience transitory low income, or have expenditure in excess of income as part of a lifetime plan.

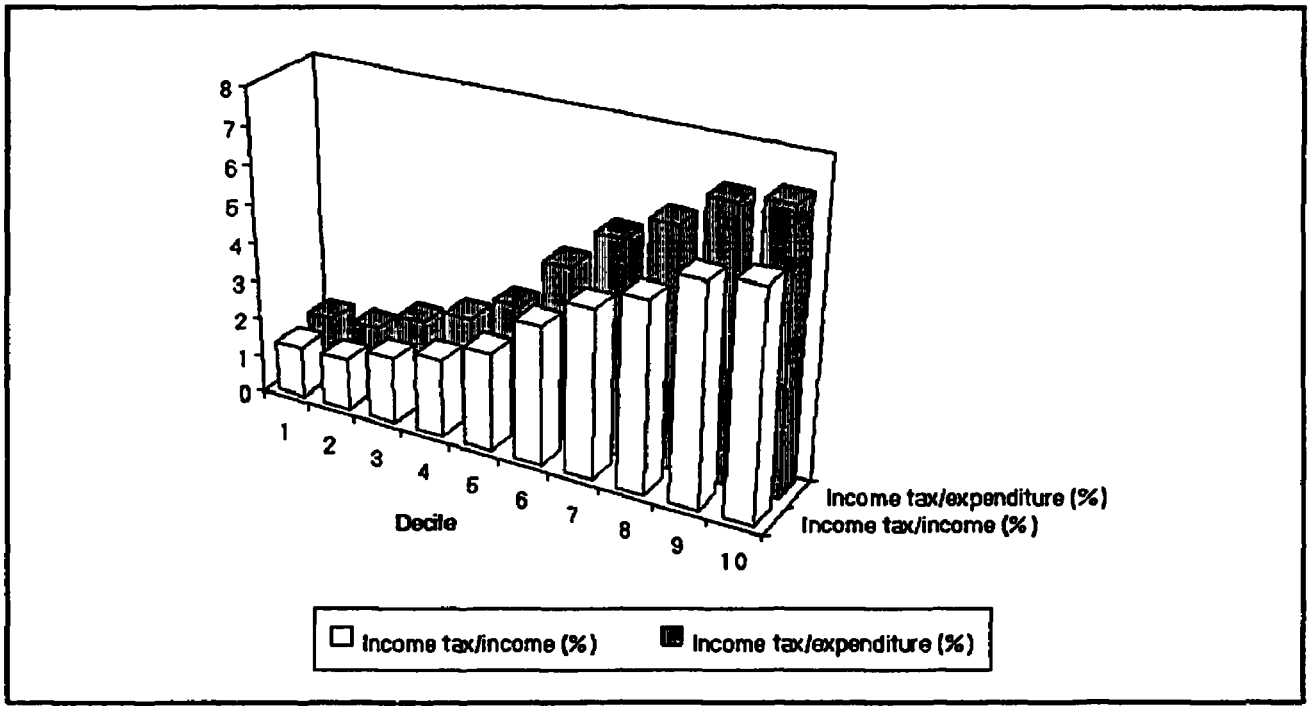

Figure 1. Income Tax Share of Income or Expenditure.

the exclusion of in-kind income/expenditure from taxation. Such exclusion greatly reduces tax burden estimates, particularly in the rural sector where in-kind income/expenditure is more common[13]. The "urban bias" in tax burden, however, can be justified on equity grounds as there appears to be a wide belief across the country that public services have not been equally distributed among urban and rural areas. In particular, social and infrastructure expenditures were lower in rural areas with the capital of the country having the loin's share.

13/Huang's (1976) study of the distribution of the tax burden in Tanzania concluded that the role of in-kind consumption is extremely important and partially explains why the tax system is both progressive and urban bias.

Table 4: Effective Income Tax Rates Under Alternative Approaches

Income\ Expend. Decile	National		Urban		Rural	
	T/Y (%)	T/E (%)	T/Y (%)	T/E (%)	T/Y (%)	T/E (%)
Bottom	1.35	1.58	1.51	1.68	0.96	1.25
Second	1.36	1.62	1.64	1.83	1.03	1.48
Third	1.74	2.13	2.29	2.54	1.03	1.57
Fourth	2.03	2.54	2.59	2.93	1.15	1.75
Fifth	2.53	3.19	3.51	3.94	1.53	2.40
Sixth	3.56	4.50	5.28	5.82	1.80	2.78
Seventh	4.32	5.50	5.96	6.40	2.46	3.87
Eight	4.86	6.12	6.01	6.60	3.02	4.75
Ninth	5.62	6.93	7.28	7.74	3.28	5.12
Top	5.82	7.15	7.82	7.93	3.63	5.60
Average	4.06	5.03	5.31	5.73	2.42	3.72

T=Income tax paid, Y= household per capita income and E=per capita expenditure.
Source: Authors' estimates using 1992 Individual Budget of Households Survey, NSI.

Table 5: Percentage of Income Tax Paid by Income Decile

Income decile	National	Urban	Rural
Bottom	1.38	1.40	1.51
Second	1.86	1.67	2.35
Third	2.79	2.89	2.82
Fourth	3.69	3.68	3.53
Fifth	5.20	5.52	6.30
Sixth	8.16	9.31	6.01
Seventh	11.26	11.83	10.65
Eighth	14.53	13.57	14.96
Ninth	19.86	19.68	19.24
Tenth	31.27	30.46	32.63
Total	100	100	100
Poor (lowest 2 decile)	3.24	3.07	3.86

Source: Authors' tabulations using 1992 Individual Budget of Households.

Finally, we assess the distributional impact of income tax at the national, urban and rural level, by posing the question whether the poor and other lower income classes pay a smaller share of total income tax than their share of national income. In such a case the income tax system is judged to be pro-poor, as it reduces income inequality. Table 5 presents information on the percentage of income tax paid by each income decile at the national level, urban and rural level. Lorenz curves in Figure 2 further illustrate the nature of the distribution. Combining the information in Tables 2 and 5 indicates that the poor as well as the lower middle income groups (up to the 6th income decile), pay a smaller share of income tax than their share of national income. While the poor (bottom two decile) for instance, pay about 3.2 percent of total income tax (or less than one third of their income share) the top income class share of tax is 31.3 percent (or more than 50 percent of their income share). These results are further confirmed by Figure 2 which shows that the Lorenz curve for income tax lies far below the income curve for the entire income spectrum. Thus the current income tax system contributes significantly to reducing income inequality. This positive distributive effect of income tax applies to both the urban and rural sector (see Tables 2 and 5 and Figure 2).

Interestingly, overall, urban households are found to pay smaller share of their total taxes paid than rural households. However, the difference is not significant. This applies to the rural poor (the lowest two deciles) and urban poor as well. This conclusion confirms the insignificant difference in the income distribution between urban and rural sector.

In sum the current income tax system seems to be progressive and urban bias. Furthermore, it contributes significantly to reduce overall and sectoral (urban-rural) income inequality.

[FIGURE 2 APPROXIMATELY HERE]

VI. Conclusions

This study has made use of the most recent household budget survey to determine the distribution of the overall and sectoral (urban-rural) income and income tax burden in Bulgaria. The distributional impact at the national, urban and rural level of the present income tax has also been examined.

The findings indicate that Bulgaria is characterized by low income inequality, though this is changing rapidly. while income levels vary significantly between urban and rural areas, both the analysis of income shares by decile and Gini coefficients indicate that there is no significant difference between them in terms of income distribution .

The analysis suggests that the present income tax system is significantly progressive as the percentage of income paid in tax rises with income. For instance, the poor (the lowest two income decile) pay only 1.4 percent of their per capita income to the government in income tax, whereas the rich (top decile) pay nearly 6 percent effective tax rate. The distributional pattern of the tax burden remains unchanged when household per capita expenditure rather than per capita income is used as a base for calculating the effective tax rates. This similarity between income and expenditure-based burden estimates cuts across

income and expenditure classes as well as types of residence (urban-rural). The progressiveness of the income tax is due, among other things, to marginal tax rates ranging from 20 percent to 52 percent and this is accentuated by the exclusion of in-kind income/expenditure from taxation.

The study also found that the present income tax system has an obvious "urban bias". For example, urban households pay 5.3 percent of their per capita income in income tax, whereas the rural sector pays 2.4 percent (or less than half the urban amount). This urban-rural disparity in income tax burden cuts across income as well as expenditure classes. It should be noted that the exclusion of in-kind income/expenditure from taxation reduces tax burden estimates, particularly in rural areas where in-kind income/expenditure is more common. The urban bias, however, can be justified on equity grounds. To the extent that urban households are enjoying more government services per capita, this higher tax burden seems to at least partially offset the urban bias of the public services favoring urban residents.

The progressivity and urban bias in Bulgaria, however, must be viewed cautiously since it is obvious that as in-kind income becomes monetized, and the economy more market-oriented, both progressivity and urban/rural difference will be substantially reduced over time.

Finally, the distributional effects of income tax are also assessed. We raise the question whether the poor and other lower income groups pay a smaller share of income tax than their share of national income. In such a case the tax system is judged to be pro-poor as it reduces the pre-tax income inequality. It is found that the present income tax system

contributes significantly to reducing income inequality at both national and sectoral level, as the poor (as well as the lower middle income groups up to the 6th decile) pay a smaller share of taxes than their share of national income. Ultimately, concerns over the equity of tax policies should motivate future studies that examine the whole tax system rather than the specific tax analyzed here.

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Figure 2 (a). Distribution of household per capita income and income tax

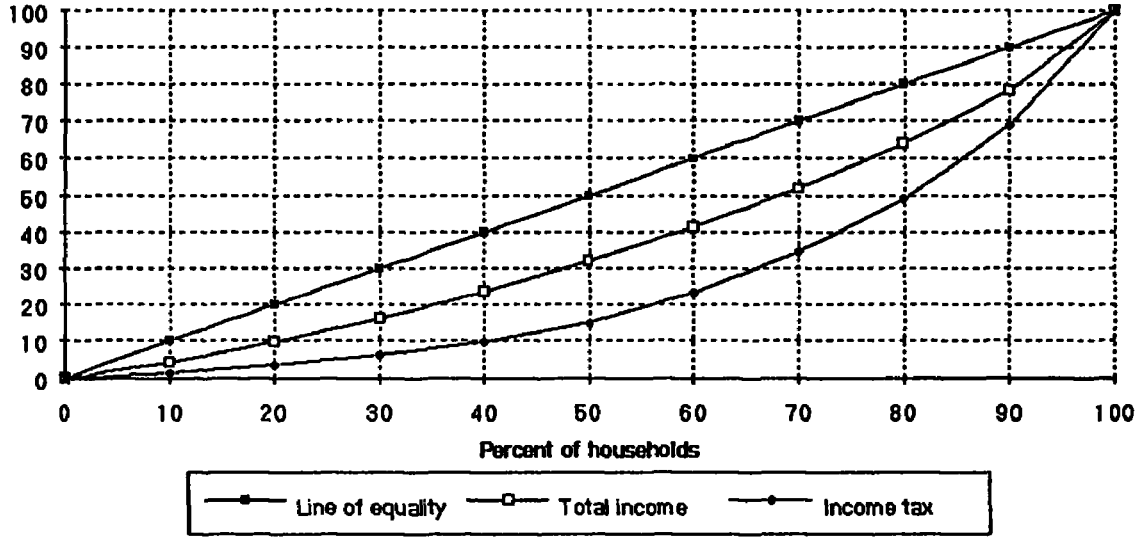


Figure 2(b). Distribution of urban household per capita income and income tax

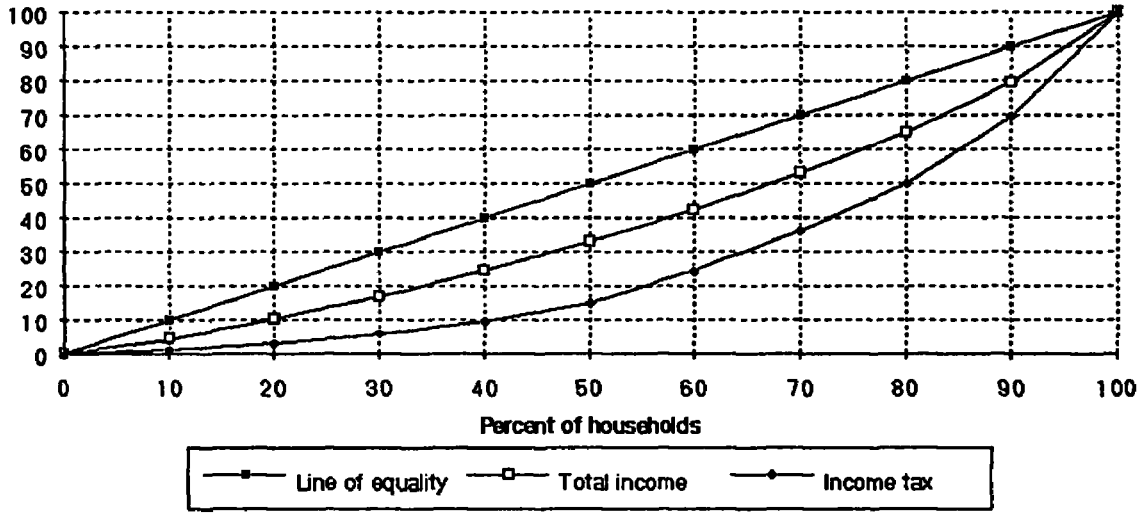
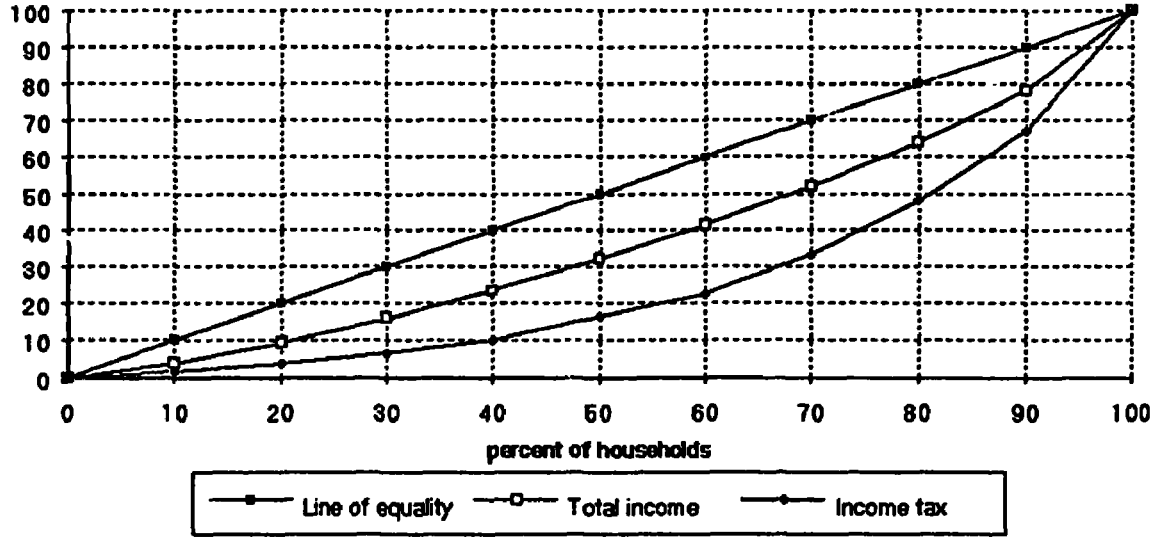


Figure 2(c). Distribution of rural household per capita income and income tax



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